REMARKS

Claims 1-35 are pending in this application, claims 1, 9, and 21 being the independent claims.

Claims 1-3, 5-10, 12-13, 18-19, and 33-35 stand rejected under 35 U.S.C. 102(e) as being anticipated by Drake et. al, U.S. Patent No. 6,377,394. In addition, claims 4 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Drake in view of allegedly admitted prior art. Claims 14-17, 20-29, and 30-32 stand rejected as being unpatentable over Drake in view of various combinations of Denkin, U.S. Patent No. 6,356,386. These rejections are hereby traversed for the following reasons.

The present invention provides a method and apparatus for automatically controlling the gain of an optical amplifier. Automatic gain control (AGC) is achieved by adjusting the pump power supplied to the optical amplifier. The pump power is determined in accordance with both feed-forward and feedback error signals. As discussed on page 3, lines 4-25 of the specification, in a feed-forward arrangement the pump power is adjusted based solely on changes to a parameter that is input to the optical amplifier such as the input power, for example. In a feedback arrangement, the pump power is adjusted based on at least one output parameter (e.g., the output power), and possibly an input parameter as well.

The Examiner points to col. 1, lines 53-57 of Drake, which states that "AGC schemes may use feed-forward or feedback loops, or a combination of these..." As described below, Applicants respectfully submit that Drake is not an enabling reference and thus fails to anticipate the present invention.

It is well-established that a reference can only be anticipatory under section 102 if a reference contains an "enabling disclosure." See MPEP 2121.01, citing *In re Hoeksema*, 399 F.2d. 269, 158 USPQ 596 (CCPA 1968). A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publications description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985).

Drake is not an enabling reference because the statement that AGC schemes can use feedback, feed-forward or a combination of both is not sufficient to allow one of ordinary skill in the art to make the invention. Drake is insufficient because it does not disclose how feed-forward and feedback can both be used to achieve AGC. For example, feed-forward and feedback control signals will generally give rise to different, even contradictory, responses. How should one of ordinary skill apply these two control signals? Should both be applied simultaneously, or would this result in a disproportionately large correction? Alternatively, should the larger of the two control signals be applied? Or should the average of the two control signals be applied? Or should only one control signal be used until the other exceeds (or falls below) a certain threshold? Drake is silent on these essential details. In fact, Drake gives no discussion whatsoever concerning how both feed-forward and feedback can be used together.

Drake fails to recognize that an inherent latency exists in the feedback control signal that is not present in the feed-forward control signal, and that as a result of this latency, the continual, simultaneous application of both feed-forward and feedback does not lead to a disproportionately large control signal (see paragraph 13 of the present specification). That is, Drake fails to recognize that when feedback and feed-forward control signals are simultaneously applied, the control signals are responding to changes in input power that have occurred at different times (see paragraph 32 of the present specification). Drake fails to recognize that the feed-forward control signal can be designed to fully compensate for changes in input power despite the fact that the feedback control signal will be making corrections simultaneously (see paragraph 48 of the present specification). That is, a feed-forward arrangement provides a more rapid response, but feedback provides a more accurate response (see paragraph 34 of the present specification). In other words, the claimed invention can only be made by one of ordinary skill by further recognizing that feedback can be used as a refinement to the results provided by a feed-forward arrangement. Only the present inventors have made this essential recognition and thus only the present inventors are in sufficient possession of the invention to make an AGC scheme that uses both feed-forward and feedback control signals (see paragraphs 44-47 of the present specification for detailed concerning

how this may be accomplished). Since Drake fails to recognize this, Drake by itself is not an enabling reference.

CONCLUSION

For at least the above reasons it is respectfully requested that the rejection of independent claims 1 and 9 under 35 U.S.C. 102(e) and claim 21 under 35 U.S.C. 103(a) be reconsidered and withdrawn. The rejection of claims 2-8, 10-20, and 22-35 should also be reconsidered and withdrawn since these claims depend from and further define the invention of claim 1, 9 and 21.

In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. If the Examiner believes there are still unresolved issues, a telephone call to the undersigned would be welcomed.

Respectfully submitted,

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